Mixing Wettable Powder Formulations

The pesticide label says to use 2 pounds of pesticide in 100 gallons of water. You want to fill a 300-gallon tank. How much pesticide must you add?

Develop a ratio or proportion, with the same units on the top, and the same units on the bottom.

$$\frac{2 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{300 \text{ gallons}}$$

Cross multiply

$$\frac{2 \text{ pounds}}{100 \text{ gallons}} \quad X \quad \frac{N \text{ pounds}}{300 \text{ gallons}}$$

(100 X N) = (2 X 300)

100 N = 600

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{600}{100} \qquad N = 6 \text{ pounds}$$

How many pounds of pesticide will you use if you just need 20 gallons of spray mixture?

$$\frac{2 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{20 \text{ gallons}}$$

Cross multiply

$$\frac{2 \text{ pounds}}{100 \text{ gallons}} \quad X \quad \frac{N \text{ pounds}}{20 \text{ gallons}}$$

(100 X N) = (2 X 20)

100 N = 40

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{40}{100}$$

N = 0.4 pounds   How many ounces is that?

0.4 pounds X $\frac{16 \text{ ounces}}{1 \text{ pound}}$ =   6.4 ounces

Practice:

1. *The pesticide label says to use 2.5 pounds of pesticide in 100 gallons of water. You want to fill a 300-gallon tank. How much pesticide must you add?*

2. *How much pesticide do you need if you want just 10 gallons of spray mixture?*

3. *The pesticide label says to use 2.5 pounds of pesticide in 100 gallons of water. You want to fill a 600-gallon tank. How much pesticide must you add?*

4. *What if you need just 200 gallons of spray mixture?*

Answers

1. *The pesticide label says to use 2.5 pounds of pesticide in 100 gallons of water. You want to fill a 300-gallon tank. How much pesticide must you add?*

$$\frac{2.5 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{300 \text{ gallons}}$$

(100 X N) = (2.5 X 300)

100 N = 750

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{750}{100}$$

N = 7.5 pounds

2. *How much pesticide do you need if you want just 10 gallons of spray mixture?*

$$\frac{2.5 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{10 \text{ gallons}}$$

(100 X N) = (2.5 X 10)

100 N = 25

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{25}{100} \qquad N = 0.25 \text{ pounds}$$

3. *The pesticide label says to use 2.5 pounds of pesticide in 100 gallons of water. You want to fill a 600-gallon tank. How much pesticide must you add?*

$$\frac{2.5 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{600 \text{ gallons}}$$

(100 X N) = (2.5 X 600)

100 N = 1,500

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{1,500}{100}$$

N = 15 pounds

4. *What if you need just 200 gallons of spray mixture?*

$$\frac{2.5 \text{ pounds}}{100 \text{ gallons}} = \frac{N \text{ pounds}}{200 \text{ gallons}}$$

(100 X N) = (2.5 X 200)

100 N = 500

Divide each side by 100 to solve for N:

$$\frac{N}{100} = \frac{500}{100}$$

N = 5 pounds

Another way of doing these problems is to see if you can find a relationships:

The pesticide label says to use 2 pounds of pesticide in 100 gallons of water. You want to fill a 300-gallon tank. How much pesticide must you add?

$\dfrac{300 \text{ gallons}}{100 \text{ gallons}}$ = 3

If you need 3 times the amount of water, you'll need 3 times the amount of product (2 pounds X 3= 6 pounds).